26-ID-05

Committee: Infectious Disease

Title: Standardized Surveillance Case Definition for Human New World Screwworm (NWS) Myiasis to Support One Health Response

☐Check this box if this position statement is an update to an existing standardized surveillance case definition and include the most recent position statement number here: __N/A___.

Synopsis: This position statement creates a standardized case definition for **Human New World Screwworm (NWS) Myiasis.**

- Establishes uniform national criteria for case ascertainment and case classification of human NWS myiasis to strengthen public health surveillance.
- Supports timely identification, investigation, and reporting of human NWS cases to prevent potential reintroduction or establishment of *Cochliomyia hominivorax* in the United States (U.S.), provides consistent surveillance methods and recommended data sources to improve detection and monitoring across jurisdictions, and aligns surveillance practices across jurisdictions in the U.S. and its territories.
    - *Publication Note: The first re-introduced animal case in the U.S. was reported on June 3, 2026 during this position statement's approval process.*
- Supports strengthened communication and coordination between public health, veterinary, and federal partners using a One Health approach.
- Case ascertainment criteria include clinical, laboratory, epidemiologic linkage, vital records, and healthcare records data.
- Case classification criteria include clinical, laboratory, and epidemiologic linkage data.
- Case classification includes confirmed, probable, and suspect categories.

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I. Statement of the Problem

New World screwworm (NWS) myiasis has re-emerged as a health issue in Central and North America [1]. While previously well controlled at the Darien Gap in Panama, NWS cases in animals and humans have increased in number and geographic range since 2022. In the years since, NWS detections have trended northward towards the United States (U.S.), with animal cases reported in northern Mexico [2]. An introduction of NWS to the U.S. and establishment of the fly could devastate agricultural operations and wildlife populations, and lead to morbidity in infested humans if left untreated [3]. Because of the severe economic impact, identified human or animal NWS cases must be investigated thoroughly and mitigation efforts quickly implemented. It is necessary to have a standardized case definition for human NWS cases in the U.S. to enhance disease surveillance and allow for clear communication with state and federal animal health officials responding to this outbreak, utilizing a One Health approach.

II. Background and Justification

New World screwworm (NWS) myiasis is caused by infestation with larvae of *Cochliomyia hominivorax*. Unlike other fly species, *C. hominivorax* larvae feed on living tissue before pupating and can infest all mammals and, rarely, birds. Flies lay hundreds of eggs on preexisting wounds, mucous membranes, or body orifices such as nostrils, eye orbits, ears, mouth, umbilicus, and genitalia [4]. Aggressive larval feeding damages tissue and increases the risk of secondary myiasis and bacterial infection [5]. This form of infestation constitutes traumatic myiasis (fly larvae/maggot infestation characterized by tissue destruction and expanding lesions in living tissue). In endemic regions, livestock experience significant morbidity and mortality, and wildlife can maintain NWS fly populations, making surveillance and treatment challenging [4].

Historical control relied on multiple pest management strategies, most notably the sterile insect technique (SIT), in which infertile male flies mate with wild females and produce no viable offspring [6]. Combined with livestock wound prevention and insecticide treatment, SIT helped suppress *C. hominivorax* populations [6-7]. Although NWS flies historically occurred throughout the southern U.S. to South America and the Caribbean, the U.S. eradicated the fly in the 1960s [8-9]. By 1997, its range was mostly south of the Darien Gap and in select Caribbean areas [9]. Recent expansion north of the Darien Gap is likely due to a combination of adult fly migration and movement of infested animals.

Human cases can occur in regions with active transmission, though far less frequently than animal cases. Risk factors include open wounds or sores, medical conditions that slow healing or cause bleeding, a reduced ability to protect oneself from flies, young or advanced age, sleeping outdoors or in unscreened locations (especially during daytime when flies are active), and extended exposure to livestock in affected regions [5]. Cases have occurred in people of all age groups, including those without comorbidities.

When a human case is identified, removal and destruction of larvae is the only proven treatment. Larvae must be placed in alcohol, which prevents larvae from maturing into adult flies and continuing the transmission cycle. Rare deaths have been reported when larvae were not fully removed. If all larvae cannot be accounted for or are improperly discarded, flytrap surveillance with chemical attractants is required.

Human cases detected in the U.S. have been linked to travel to endemic countries [10-11] and to countries with outbreak activity [1, 12]. When NWS was endemic in the U.S., no standardized human surveillance existed, so historical data are limited, and larval species were not always identified. Nonetheless, reports from the mid-1900s describe cases of human myiasis either consistent with screwworm or confirmed as *C. hominivorax* [8-9]. Decreases in human cases accompanied reductions in local fly populations [8, 13].

An NWS outbreak has major consequences for animal health and agricultural economies. In endemic areas, losses reach millions of dollars, including an estimated $340 million in Brazil [3]. The U.S. Department of Agriculture (USDA) estimates that an outbreak could cause $1.8 billion in losses in Texas alone [9]. Eradication is neither easy nor rapid: eliminating NWS from the U.S. (1957–1982) and Mexico (1972–1991) cost $2.6–$3.5 billion in 2024 adjusted dollars. When NWS was detected in Key deer in Florida in 2016, USDA Animal and Plant Health Inspection Service (APHIS) spent $3.2 million to contain and eliminate the outbreak [14].

Standardized surveillance for human NWS myiasis will strengthen U.S. response efforts by ensuring cases are promptly identified, investigated, and used to assess the risk of NWS introduction or spread. It also supports coordinated multijurisdictional investigations, improves public health understanding of NWS epidemiology, and advances a One Health approach to this emerging pest.

Publication Note: During the 2026 position statement approval process, the USDA-APHIS reported the first confirmed detection of NWS in a bovine in Texas [15]. At the time of publication (July 13, 2026), more than 30 animal cases have been identified in Texas and New Mexico; however, no human cases have been identified.

III. Statement of the Desired Action(s) to be Taken

CSTE recommends the following actions:

1. Implement a standardized surveillance case definition for **Human New World Screwworm (NWS) Myiasis**.

    A. Utilize recommended reporting* sources for case ascertainment for **Human NWS Myiasis**. Surveillance for **Human NWS Myiasis** should use the recommended sources of data to the extent of coverage presented in Section V.

    B. Utilize standardized criteria for case ascertainment for **Human NWS Myiasis** presented in Section VI and Table VI in Technical Supplement.

    C. Utilize standardized criteria for case classification for **Human NWS Myiasis** presented in Section VII and Table VII in Technical Supplement.

** Reporting: process of a healthcare provider, laboratory, or other entity submitting a report (case information) of a condition under public health surveillance to local, state, or territorial public health.*

IV. Goals of Surveillance

Provide information on the temporal, geographic, and demographic occurrence of human NWS myiasis, to prevent its reintroduction and establishment in the U.S.. Surveillance for human NWS myiasis cases will support efforts to track the movement of *C. hominivorax* and facilitate its prevention and control as well as further enhance animal health surveillance and One Health response efforts.

V. Recommended Data Sources and Methods for Surveillance

Surveillance for Human NWS Myiasis should use the following recommended sources of data and/or methodologies and the extent of coverage listed in Table V.

Table V. Recommended Sources of Data, Surveillance Methods, and Extent of Coverage for Ascertainment of Cases of Human NWS Myiasis.

Source of Data/Methodology for Case Ascertainment	Coverage	
	Population-Wide	Sentinel Sites
Clinician reporting	X	
Laboratory reporting	X	
Reporting by other entities, specify: N/A		
Death certificates	X	
Hospital discharge or outpatient records	X	
Data from electronic medical records	X	
Telephone or online survey		
School-based survey		
Other, specify: N/A		

VI. Criteria for Case Ascertainment

Case ascertainment is the process through which public health identifies potential cases of a disease or condition using data reported or provided to public health by healthcare, laboratories, and other reporting entities. This public health reporting is triggered by the case ascertainment criteria (a single criterion or a combination of criteria) included in this position statement, and each initial report sent to public health should include common data elements and disease-specific data elements. Case ascertainment criteria are not intended to be used for clinical diagnosis purposes.

A. Narrative: A description of suggested criteria for case ascertainment of a specific condition and recommended reporting procedures.

Report any infestation to public health authorities that meets any of the following criteria:

A1. Clinical Criteria for Reporting*

- A person with clinical signs and symptoms consistent with traumatic myiasis (fly larvae/maggot infestation characterized by tissue destruction and expanding lesions in living tissue), including visible larvae or eggs, sensation of movement, foul odor, bloody discharge, swelling, or pain in or around an open wound (including the unhealed umbilicus of a neonate), surgical site, mucous membrane, or body orifice.

** Clinical criteria for reporting must be paired with epidemiologic linkage criteria for reporting to trigger a report to public health.*

A2. Laboratory Criteria for Reporting

- Morphological identification of *C. hominivorax* larvae (first, second, or third instars) obtained from an open wound (including the unhealed umbilicus of a neonate), surgical site, mucous membrane, or body orifice of a person, conducted by a CLIA certified laboratory or other proficiency-accredited laboratory as proficient to perform an Ova and Parasite Examination assay.

A3. Epidemiologic Linkage Criteria for Reporting**

- Travel to or residence in a geographic area designated by an authoritative source (e.g., USDA, World Organisation for Animal Health [WOAH], CDC, and the World Health Organization [WHO]) as affected by NWS in animals or humans during the relevant exposure period.

*** Epidemiologic linkage criteria for reporting must be paired with clinical criteria for reporting to trigger a report to public health.*

A4. Vital Records Criteria for Reporting

- A person whose death record lists NWS myiasis as an underlying cause or significant condition contributing to death.

A5. Healthcare Record Criteria for Reporting

- A person whose health care record contains a diagnosis of NWS myiasis.

B. Disease-Specific Data Elements to be Included in the Initial Report

Disease-specific data elements should be included in addition to the common data elements that are to be reported for all initial individual case reports (see CSTE Position Statement 09-SI-01 “Common Core Data Elements for Case Reporting and Laboratory Result Reporting” https://cdn.ymaws.com/www.cste.org/resource/resmgr/PS/09-SI-01.pdf). Public health authorities do not expect that an initial report will contain all the information necessary for case investigation and case classification.

- Domestic and international travel history from the two weeks prior to symptom onset through the date of report;
- Presence of larvae in or around an open wound (including the unhealed umbilicus of a neonate), surgical site, mucous membrane, or body orifice.

VII. Case Definition for Case Classification

This case definition for case classification is intended solely for public health surveillance purposes and does not recommend criteria for clinical diagnosis purposes. Once a public health agency has ascertained data on potential cases of a disease or condition from reporting entities, the public health agency assigns case statuses based on the case classifications included within this position statement.

A. Narrative: A description of criteria to determine how public health should classify a case of Human NWS Myiasis.

A1. Clinical Criteria

- In the absence of more likely etiology, healthcare provider-observed visible maggots or egg masses in or around an open wound (including the unhealed umbilicus of a neonate), surgical site, mucous membrane, or body orifice.

A2. Laboratory Criteria*

Confirmatory Laboratory Evidence:

- Morphologic identification of first, second, or third instar NWS larvae by a qualified laboratory, where qualified laboratories include the CDC, USDA, or any laboratory that is designated by CDC or USDA as competent to identify NWS larvae.

Presumptive Laboratory Evidence:

- Morphologic identification of first, second, or third instar NWS larvae by a non-designated laboratory that is certified by CLIA or another accreditation body as proficient to perform an Ova and Parasite Examination assay,
  OR
- If a specimen (including eggs) is damaged or otherwise unidentifiable by morphologic examination, detection of *C. hominivorax* DNA by molecular testing in a specimen (including eggs)

Supportive Laboratory Evidence:

- N/A

** Note: The categorical labels used here to stratify laboratory evidence are intended to support the standardization of case classifications for public health surveillance. The categorical labels should not be used to interpret the utility or validity of any laboratory test methodology.*

A3. Epidemiologic Linkage Criteria

- In the two weeks prior to symptom onset, travel to or residence in a geographic area designated by an authoritative source (e.g., USDA, WOAH, CDC, WHO) as endemic for NWS or experiencing an active NWS outbreak.

A4. Case Classifications

Confirmed:

- Meets clinical criteria AND confirmatory laboratory evidence.

Probable:

- Meets clinical criteria AND presumptive laboratory evidence.

Suspect:

- Meets clinical criteria AND epidemiological linkage criteria.

B. Criteria to Distinguish a New Case of Human NWS Myiasis from Reports or Notifications which Should Not be Enumerated as a New Case for Surveillance

The following should be enumerated as a new case:

- A person not previously enumerated as a case who meets the confirmed, probable, or suspect case classification criteria, OR
- A person was previously enumerated as a case and infestation resolved or completed successful treatment (defined as removal of all larvae and resolution of the prior infestation) AND newly meets case classification criteria at least 7 days after the resolution of the previous infestation.

Reports should not be enumerated as new cases when they represent ongoing management of the same untreated or incompletely treated infestation, follow-up specimens from the same episode, or duplicate notifications referring to the same person and the same infestation event.

VIII. Period of Surveillance

This surveillance should be ongoing and routine.

IX. Data Sharing/Release and Print Criteria

CSTE recommends the following case statuses* be included in the 'case' count released outside of the public health agency:

☒Confirmed
☐Probable
☐Suspect
☐Unknown

**Which case statuses are included in case counts constitute the "print criteria."*

Jurisdictions (e.g., States and Territories) conducting surveillance under this case definition can voluntarily submit de-identified case information to CDC, if requested and in a mutually agreed upon format.

Production of national data summaries and national data re-release for non-NNCs:

- Prior to release of national data summaries CDC should follow the CDC/ATSDR Policy on Releasing & Sharing Data, issued on April 16, 2003 and referenced in 11-SI-01 and custodians of such data should consult the CDC-CSTE Intergovernmental Data Release Guidelines Working Group report (www.cste2.org/webpdfs/drgwgreport.pdf) which contains data release guidelines and procedures for CDC programs re-releasing state, local, or territorial-provided data.
- CDC programs have a responsibility, in collaboration with states, localities, and territories, to ensure that CDC program-specific data re-release procedures meet the needs of those responsible for protecting data in the states and territories.

X. Revision History

N/A. This is the first standardized surveillance position statement for **Human NWS Myiasis**.

XI. References

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Technical Supplement

Table VI. Table of criteria to determine whether a case should be reported to public health authorities.

Criterion	Human New World Screwworm (NWS) Myiasis	
Clinical Criteria for Reporting		
A person with clinical signs and symptoms consistent with traumatic myiasis (fly larvae/maggot infestation characterized by tissue destruction and expanding lesions in living tissue), including visible larvae or eggs, sensation of movement, foul odor, bloody discharge, swelling, or pain in or around an open wound (including the unhealed umbilicus of a neonate), surgical site, mucous membrane, or body orifice.		N
*Laboratory Criteria for Reporting**		
Morphological identification of *Cochliomyia hominivorax* larvae (first, second, or third instars) obtained from an open wound (including the unhealed umbilicus of a neonate), surgical site, mucous membrane, or body orifice of a person, conducted by a CLIA certified laboratory or other proficiency-accredited laboratory as proficient to perform an Ova and Parasite Examination assay.	S	
Epidemiologic Linkage Criteria for Reporting		
Travel to or residence in a geographic area designated by an authoritative source (e.g., USDA, WOAH, CDC, WHO) as affected by NWS in animals or humans during the relevant exposure period.		N
Vital Record Criteria for Reporting		
A person whose death record lists NWS myiasis as an underlying cause or significant condition contributing to death.	S	
Healthcare Record Criteria for Reporting		
A person whose health care record contains a diagnosis of NWS myiasis.	S	

Notes:
S = This criterion alone is SUFFICIENT to report a case.
N = All “N” criteria in the same column are NECESSARY to report a case.

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Table VII.A. Classification Table: Criteria for defining a case of Human New World Screwworm (NWS) Myiasis.

Criterion	Confirmed	Probable		Suspect
Clinical Evidence				
In the absence of a more likely etiology	N	N	N	N
Healthcare provider-observed visible maggots or egg masses in or around an open wound (including the unhealed umbilicus of a neonate), surgical site, mucous membrane, or body orifice.	N	N	N	N
Laboratory Evidence				
Morphologic identification of first, second, or third instar NWS larvae	N	N		
Identification by a qualified laboratory, where qualified laboratories include the CDC, USDA, or any laboratory that is designated by CDC or USDA as competent to identify NWS larvae	N			
Identification by a non-designated laboratory that is certified by CLIA or another accreditation body as proficient to perform an Ova and Parasite Examination assay		N		
Detection of *Cochliomyia hominivorax* DNA by molecular testing in a specimen (including eggs)			N	
Specimen (including eggs) is damaged or otherwise unidentifiable by morphologic examination			N	
Epidemiologic Linkage Evidence				
In the two weeks prior to symptom onset, travel to or residence in a geographic area designated by an authoritative source (e.g., USDA, WOAH, CDC, WHO) as endemic for NWS or experiencing an active NWS outbreak				N

Notes:
N = All "N" criteria in the same column are NECESSARY to classify a case.

Table VII.B. Classification Table: Criteria to distinguish a new case of Human New World Screwworm (NWS) Myiasis from reports or notifications which should not be enumerated as a new case for surveillance.

Criterion	Confirmed		Probable		Suspect
Criteria to distinguish a new case					
Person not previously enumerated as a case	S		S		S
Person was previously enumerated case and infestation resolved or completed successful treatment (defined as removal of all larvae and resolution of the prior infestation)		N		N	
Person newly meets the confirmed case classification criteria at least 7 days after the resolution of the previous infestation		N			
Person newly meets the probable case classification criteria at least 7 days after the resolution of the previous infestation.				N	

S = This criterion alone is SUFFICIENT to enumerate as a new case.
N = All "N" criteria in the same column are NECESSARY to enumerate as a new case.